

## AOS 580 AEROSOL, CLOUD AND CLIMATE

### Lecture 7: Aerosol Dynamics (Instructor: Yi Ming)

#### Reading

SP (1<sup>st</sup> ed.) 452-468, 470-475, 596-598

#### Class notes

1. Continuum and non-continuum regimes
  - Mean free path
  - Knudsen number
  - Mean free path as a function of viscosity
2. Stokes' law
  - Flow of air around a spherical particle
  - Continuity and Navier-Stokes equations
  - Reynolds number
  - Stokes' law
  - Corrections to Stokes' law (drag coefficient and slip correction factor)
3. Gravitational settling
  - Characteristic relaxation time
  - Terminal falling speed
4. Mass transport
  - Fick's law
  - Transport equations in Cartesian and spherical coordinates
  - Transport to a particle: Maxwellian flux
5. Stokes-Einstein relation